TM 11-5826-226-34
C 1

CHANGE
No. 1

R-1388

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *17 April 1973*

Direct Support, General Support, and Depot Maintenance Manual

RADIO RECEIVING SETS AN/ARN-82 AND AN/ARN-82A

TM 11-5826-226-34, 9 December 1971, is changed as follows:

1. These changes add updated maintenance schematics for the AN/ARN-82 and AN/ARN-82A.
2. Remove and insert pages as indicated below.

Remove pages	*Insert pages*
5-5 through 5-23	5-5 through 5-39

3. File this change sheet in front of the manual for future reference purposes.

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

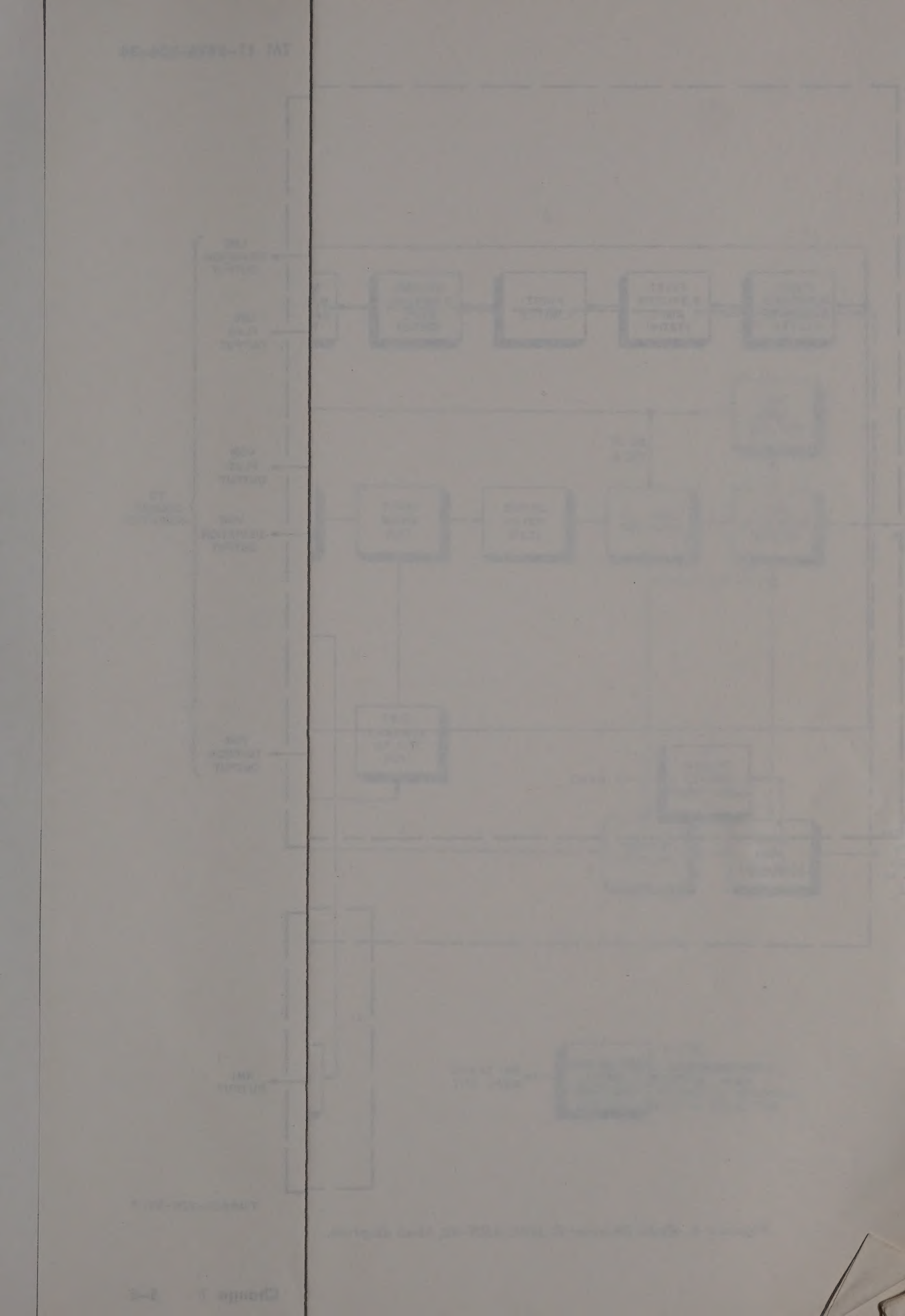
Official:

VERNE L. BOWERS
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-36, (qty rqr block No. 161) direct and general support maintenance requirements for AN/ARN-82.

☆U. S. GOVERNMENT PRINTING OFFICE: 1973—769-749/440



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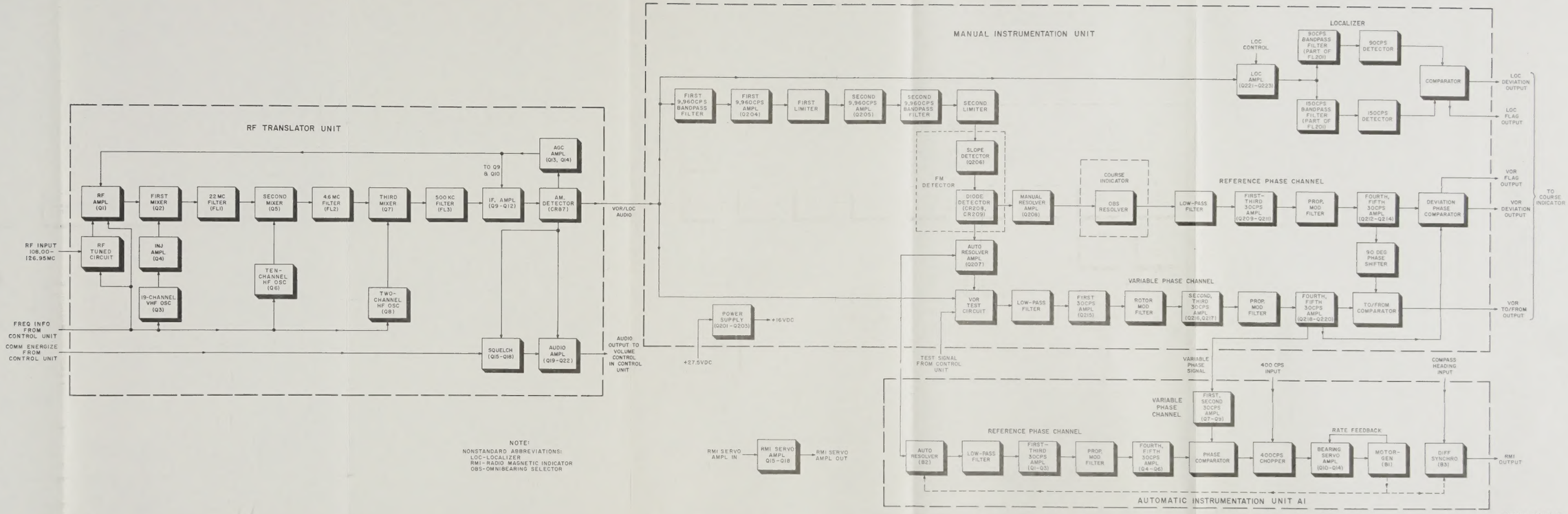


Figure 5-2. Radio Receiver R-1388/ARN-82, block diagram.

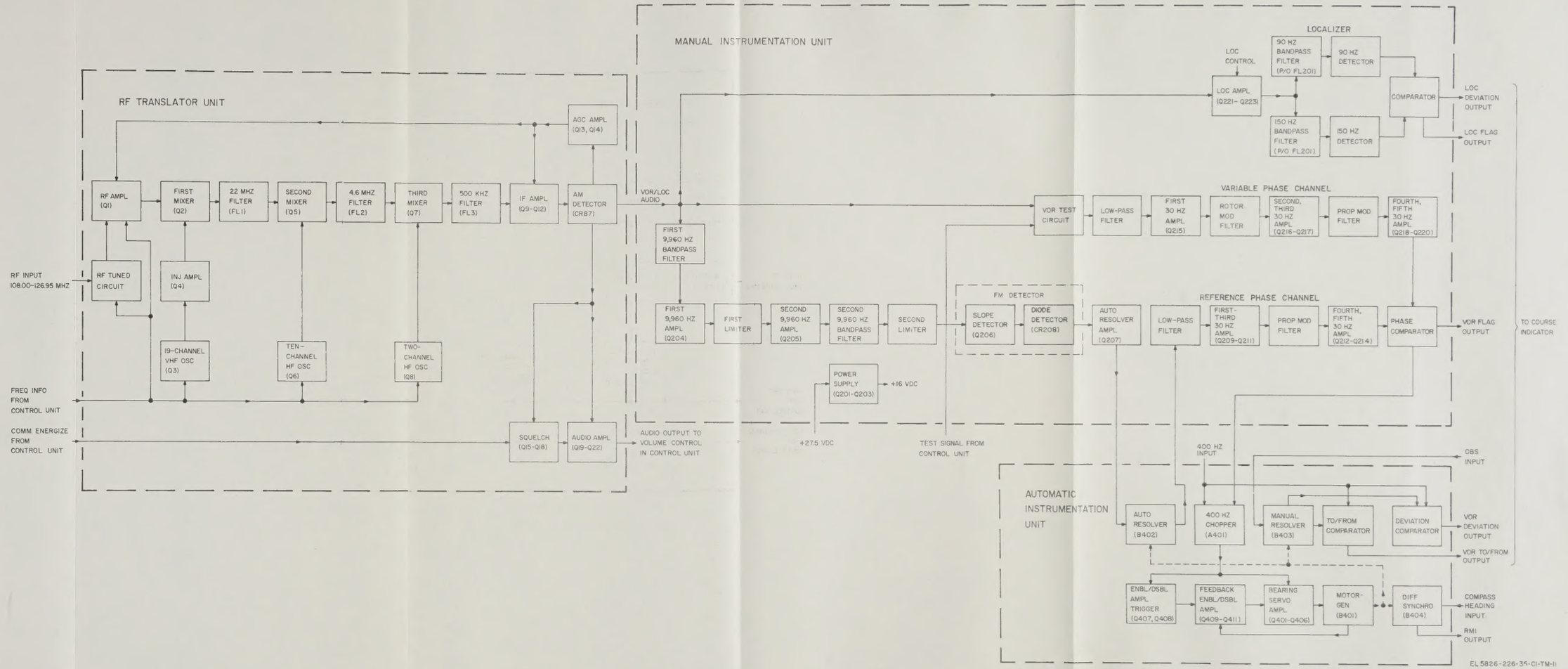
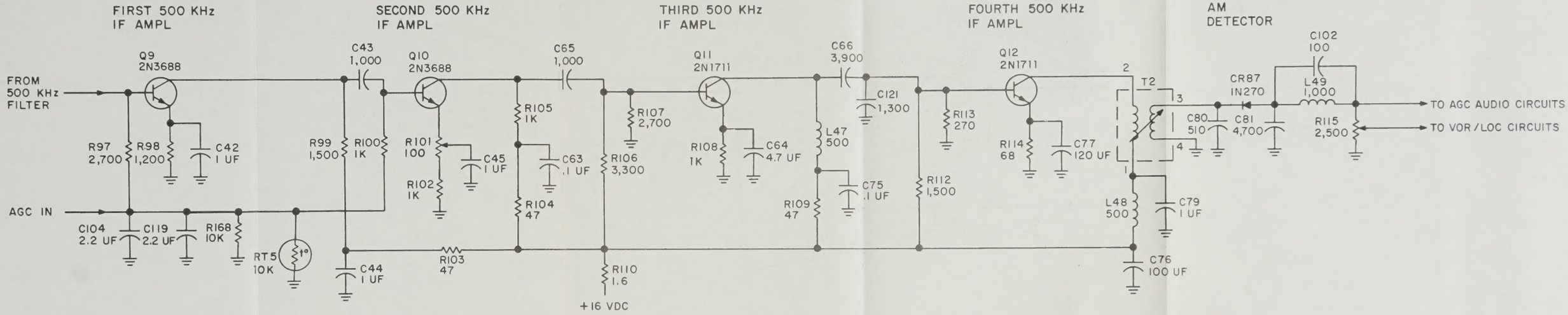


Figure 5-3. Radio Receiver R-1388A/ARN-82, block diagram.



NOTE:

UNLESS OTHERWISE INDICATED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN PICOFARADS, INDUCTANCE VALUES ARE IN MICROHENRYS.

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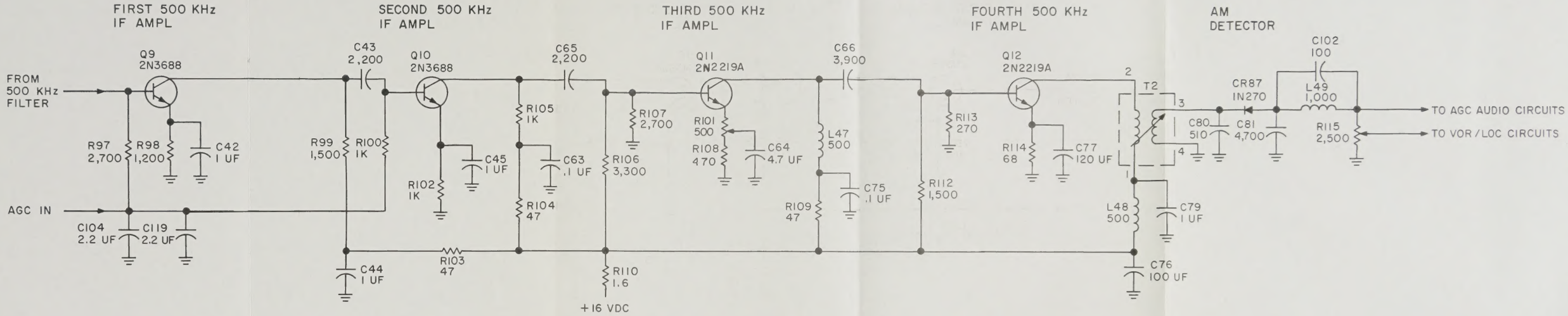
Figure 5-4. Radio Receiver R-1388/ARN-82 if amplifiers and am detector, schematic diagram.



NOTE:

UNLESS OTHERWISE INDICATED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN PICOFARADS, INDUCTANCE VALUES ARE IN MICROHENRYS.

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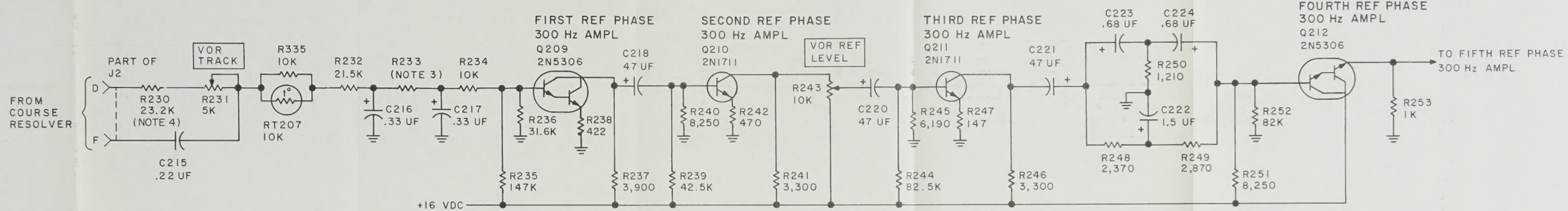
Figure 5-5. Radio Receiver R-1388A/ARN-82 if amplifiers and am detector, schematic diagram.



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTANCE VALUES ARE IN OHMS AND ALL CAPACITANCE VALUES ARE IN PICOFARADS.
2. [ ] INDICATES EQUIPMENT MARKING.
3. IN R-1388, SELECTED TO PROVIDE CENTERING OF VOR ZERO POTENTIOMETER VALUE MAYBE 12.1K, 12.7K, 13.3K, 14K, 14.7K, 15.4K, 16.2K OR 16.9K OHMS. IN R-1388A, R233 IS 16.2K OHMS.
4. IN R1388A, R230 SELECTED TO PROVIDE CENTERING OF VOR TRACK POTENTIOMETER-VALUE MAYBE 21.0K, 21.5K, 22.1K, 22.6K, OR 23.2K OHMS.

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Figure 5-6. Reference-phase 30-Hz amplifiers, schematic diagrams.

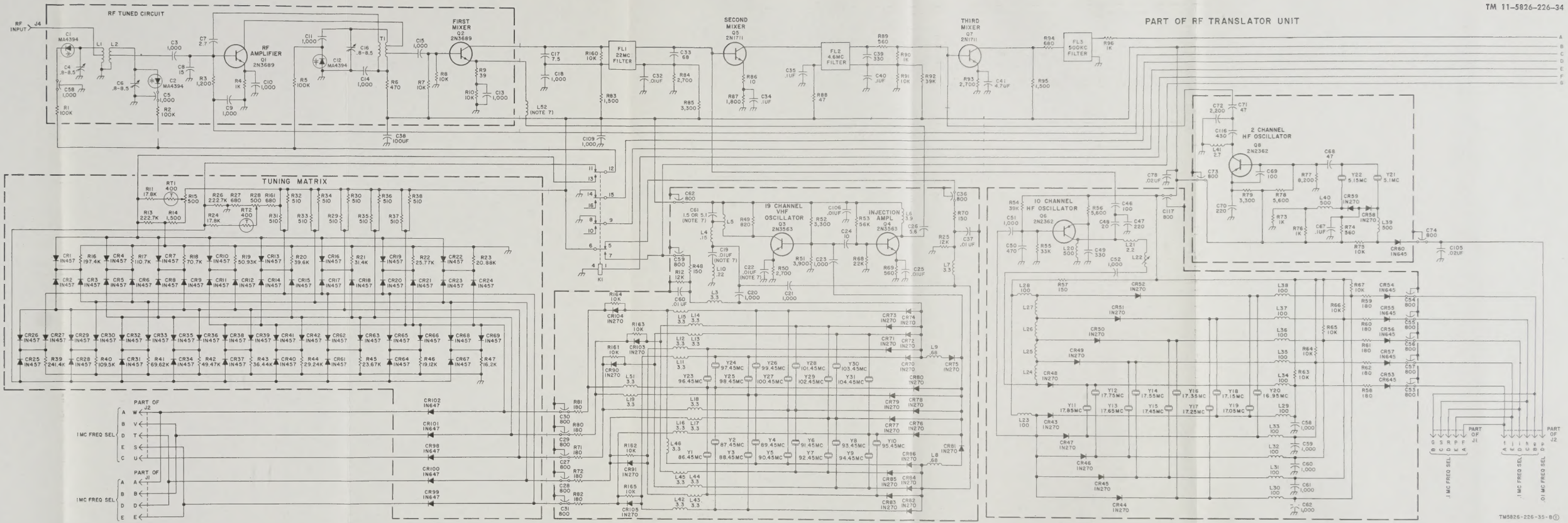


Figure 5-7(1). Radio Receiver R-1388/ARN-82, schematic diagram (part 1 of 4).

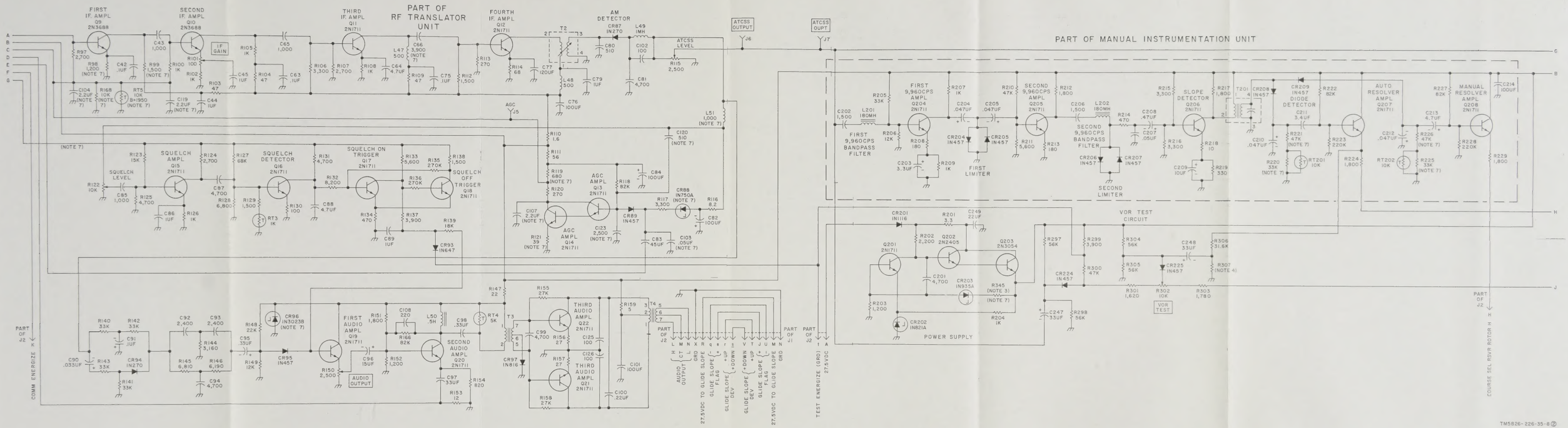


Figure 5-7(2). Radio Receiver R-1888/ARN-82, schematic diagram (sheet 2 of 4).

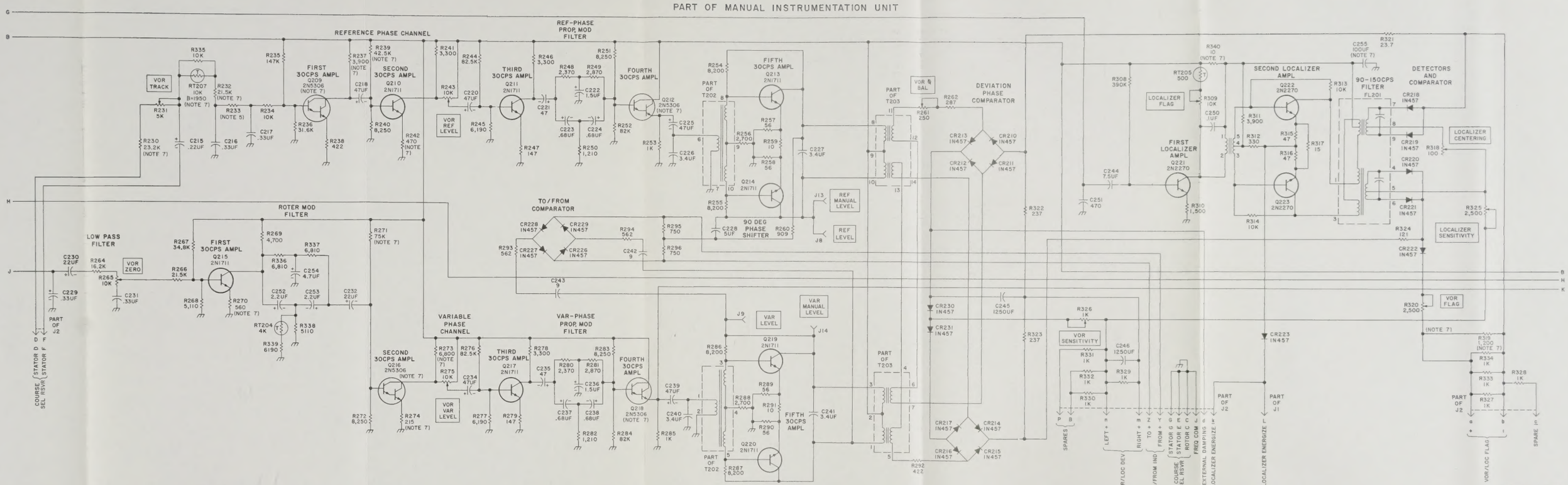
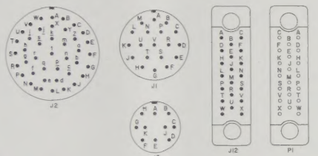


Figure 5-7(3). Radio Receiver R-1388/ARN-82, schematic diagram (sheet 3 of 4).

NOTES:

1. UNLESS OTHERWISE INDICATED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN PICOFARADS AND INDUCTANCE VALUES ARE IN MICROHENRYS.
2. ——— INDICATES EQUIPMENT MARKING.
3. MAY BE 127 OHM, 61.9 OHM, OR SHORT CIRCUIT.
4. MAY BE 3,480, 3,830, 4,020, 4,220, OR 4,640 OHM.
5. MAY BE 12.1K, 12.7K, 13.3K, 14K, 14.7K, 15.4K, 16.2K, OR 16.9K OHM.
6. MAY BE 17.8K, 21.5K, 22.6K, 23.7K, 24.9K, 26.1K, 27.4K, 34.8K, 38.3K, OR 42.2K OHM.
7. REFER TO SECTION I FOR MCN EFFECTIVITY.
8. RECEPTACLE VIEWED FROM PIN OR RECEPTACLE SIDE:



MANUFACTURER CONTROL NUMBER (MCN) EFFECTIVITY LISTING		
REF DES	AT MCN NO.	DESCRIPTION OF REVISION AND REASON FOR CHANGE
L52	3360 AND ABOVE	ADDED L52 TO INCREASE THE INJECTION LEVEL TO THE MIXER.
C61	3360 AND ABOVE	REPLACED VARIABLE CAPACITOR C61 WITH TEST SELECTED FIXED VALUE.
C19	3360 AND ABOVE	CHANGED THE VALUE OF C19 AND C22 (FROM 1,000 PF TO 0.01UF) TO INCREASE THE OUTPUT FROM THE VHF OSCILLATOR.
C22		
R98	101 AND ABOVE	CHANGED THE VALUE OF R98 (FROM 1 TO 1.2 KILOHMS) AND R99 (FROM 1.8 TO 1.5 KILOHMS) TO DECREASE THE GAIN OF IST 500-HZ IF AMPLIFIER.
R99		
C104	1637 AND ABOVE	CHANGED VALUE OF C104 (FROM 1 TO 2.2UF) AND ADDED C119 (2.2UF) TO
C119		ELIMINATE HIGH-LEVEL RF SIGNAL INTERFERENCE FROM ADJACENT CHANNEL.
R168	2751 AND ABOVE	ADDED R168 (10K KILOHMS) TO PROVIDE DECOUPLING OF THE LOCALIZER AMPLIFIER.
RT5	2751 AND ABOVE	ADDED RT5 (10 KILOHMS) TO REDUCE TEMPERATURE EFFECT ON AGC VOLTAGE.
C66	2751 AND ABOVE	CHANGED THE VALUE OF C66 (FROM 1,000 TO 3,300 PF) AND ADDED C121 (.300PF)
C121		TO PROVIDE IMPEDANCE MATCHING OF THE FOURTH IF AMPLIFIER.
K1	1473 AND ABOVE	MOVED SQUELCH 8# WIRE TO RELAY K1, WHICH DISABLES SQUELCH DURING VOR/LOC MODE
CR92	1473 AND ABOVE	REMOVED CR92 SINCE SQUELCH CIRCUIT #16 VOLTS DC NOW COMES FROM RELAY K1.
C107	3906 AND ABOVE	CHANGED THE VALUE OF C107 FROM 1UF TO 2.2UF AND ADDED C123
C123		(0.25UF) TO REMOVE SIGNALS FROM AGC AMPLIFIER.
R119, R121	1637 AND ABOVE	CHANGED VALUES OF R119 (FROM 1,200 TO 680 OHMS) AND R121 (FROM 10 TO
C103, C120		39 OHMS) AND ADDED C103 (0.5UF) AND C120 (510 PF) TO ELIMINATE HIGH-LEVEL RF SIGNAL INTERFERENCE FROM ADJACENT CHANNEL.
CR88	3488 AND ABOVE	REPLACED CR88 (FROM 1N751A TO 1N750A) TO LOWER THE AGC THRESHOLD.
L51	2751 AND ABOVE	ADDED L51 (1,000UH) TO DECOUPLE AGC AMPLIFIER FROM RF SIGNALS.
CR96	2746 AND ABOVE	CHANGED CR96 (FROM 1N5543 TO 1N3023B) TO INCREASE THE NOMINAL CURRENT THROUGH CR96.
R220, R221 R225, R226	2746 AND ABOVE	CHANGED POSITIONS OF R220, R221, R225, AND R226 TO REDUCE FLAG CURRENT LEVEL AT LOW TEMPERATURE (-55° C).
R230	2746 AND ABOVE	CHANGED R230 (FROM 10 TO 23.2 KILOHMS) TO PROVIDE MIDRANGE SETTING OF TRACKING POT.
R232 RT207	727 AND ABOVE	CHANGED VALUE OF R232 AND RT207 TO CORRECT CROSS-POINTER SHIFT OVER THE SPECIFICATION TEMPERATURE RANGE.
Q209, Q212 Q216, Q218	2746 AND ABOVE	CHANGED Q205, Q212, Q216, AND Q218 (FROM 2N711 TO 2N5306.
R237, R239 R242, R269 R270, R271 R273, R274	2746 AND ABOVE	CHANGED THE VALUES OF R237 (FROM 3.3 TO 3.9 KILOHMS), R239 (FROM 82.5 TO 42.2 KILOHMS), R242 (FROM 147 TO 470 OHMS), R269 (FROM 3.3 TO 4.7 KILOHMS), R270 (FROM 422 TO 560 OHMS), R271 (FROM 82.5 TO 75 KILOHMS), R273 (FROM 3.3 TO 6.8 KILOHMS), AND R274 (FROM 147 TO 214 OHMS) TO REDUCE TEMPERATURE EFFECT ON VOR BEARING.
C255 R340	2751 AND ABOVE	ADDED C255 (.001UF) AND R340 (10 OHMS) DECOUPLING OF THE LOCALIZER AMPLIFIER.
RT206 R319	727 AND ABOVE	DELETED RT206 AND CHANGED VALUE OF R319 TO REDUCE FLAG CURRENT LEVEL AT LOW TEMPERATURE (-55°C).
AIR1	2746 AND ABOVE	CHANGED AIR1 (FROM 21.1 TO 23.2 KILOHMS) TO PROVIDE MIDRANGE SETTING OF TRACKING POT.
AI01 AIR9	2746 AND ABOVE	CHANGED AI01 (FROM 2N711 TO 2N5306) AND AIR9 (FROM 3.3 TO 3.9 KILOHMS) TO REDUCE TEMPERATURE EFFECT ON VOR BEARING.
AI04	2746 AND ABOVE	CHANGED AI04 (FROM 2N711 TO 2N5306) TO REDUCE TEMPERATURE EFFECT ON VOR BEARING.

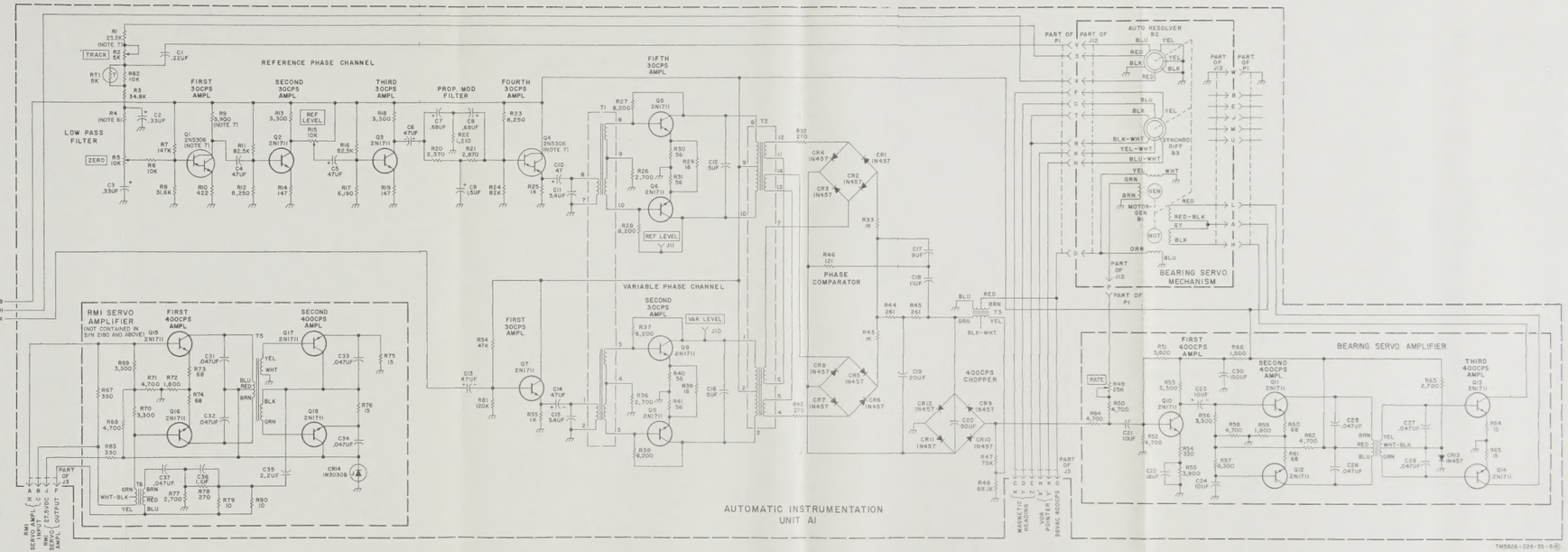


Figure 5-7(1). Radio Receiver R-1518/ARN-82, schematic diagram (sheet 4 of 4).

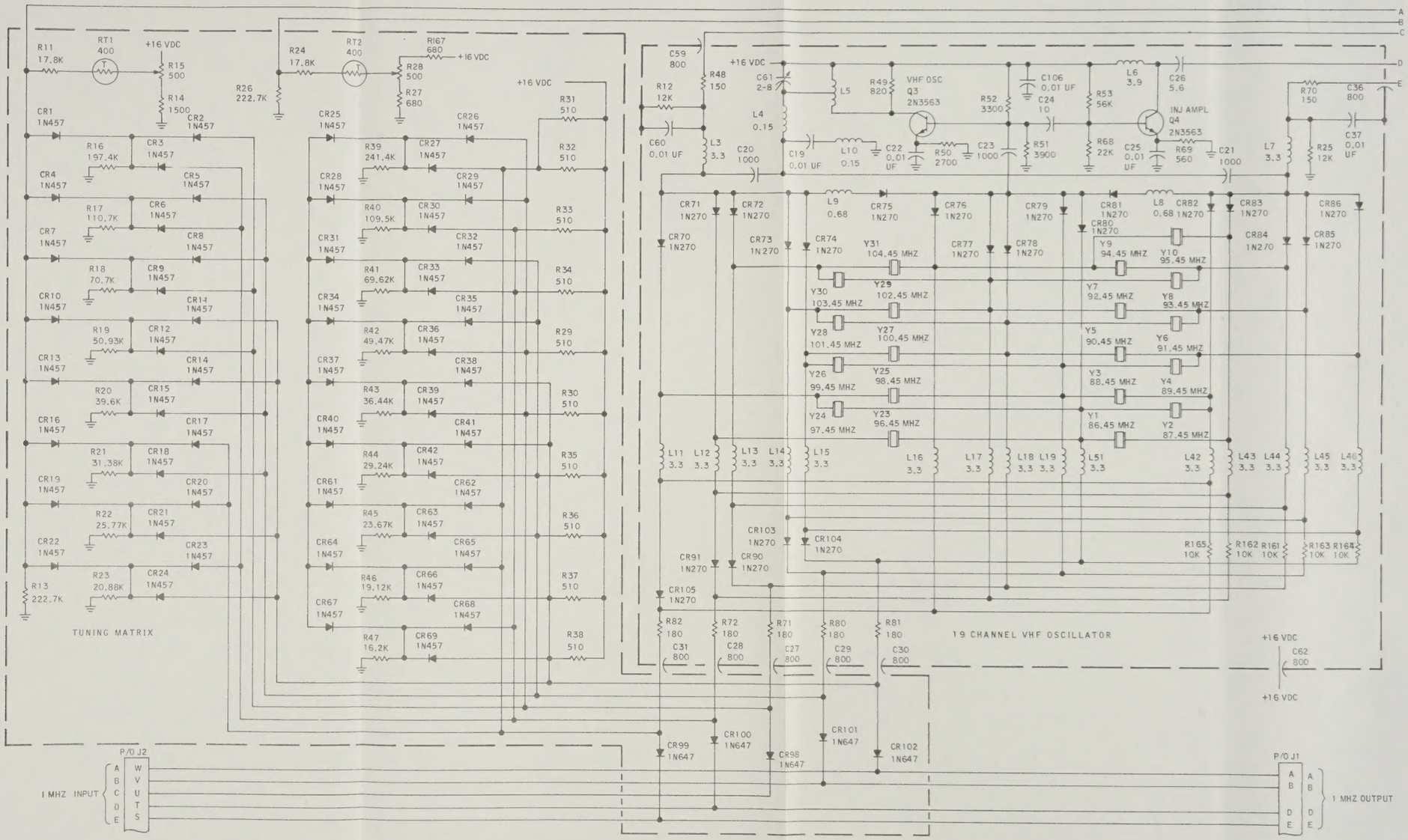


Figure 5-8(1). Radio Receiver R-1388A/ARN-82, schematic diagram (sheet 1 of 6).

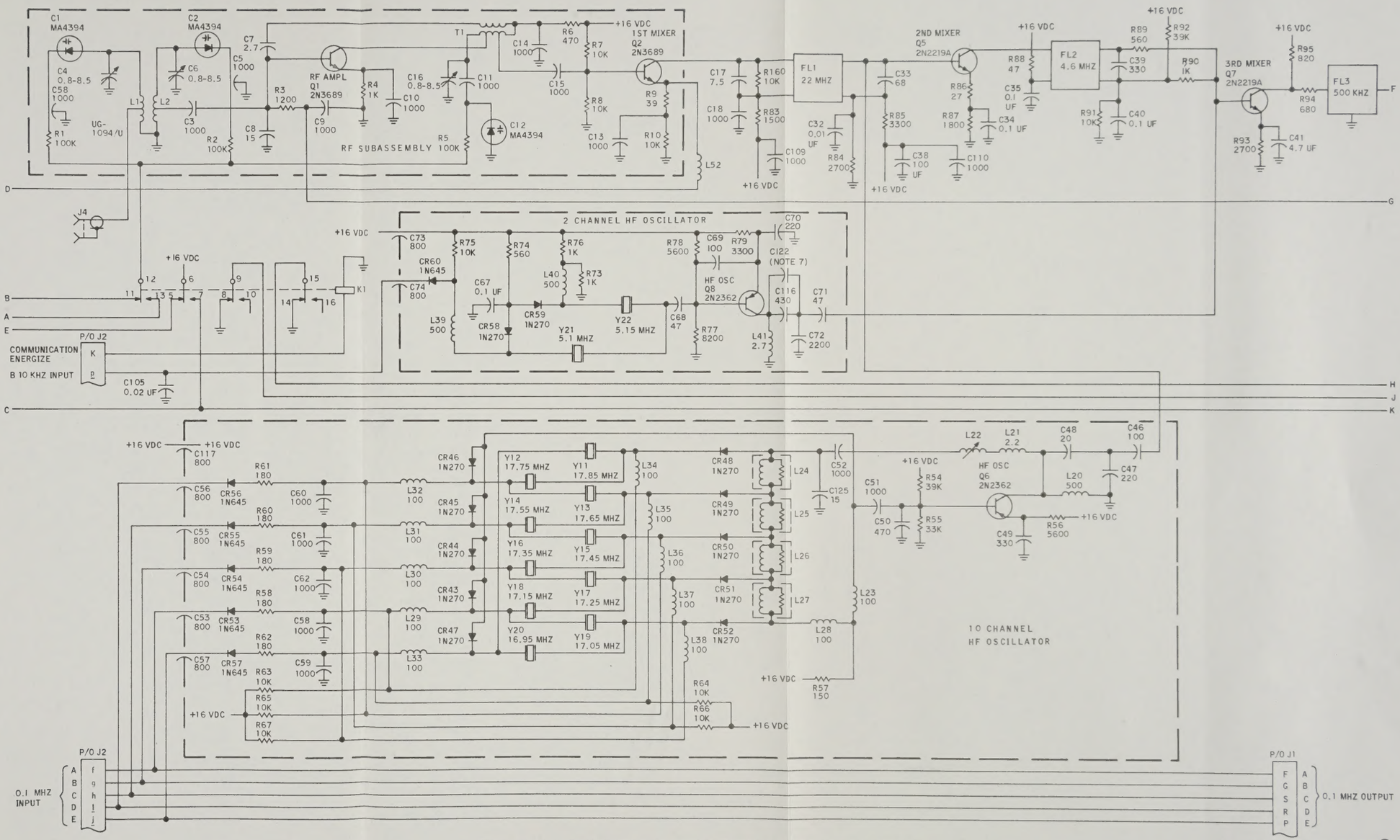


Figure 5-8(2). Radio Receiver R-1388A/ARN-82, schematic diagram (sheet 2 of 6).

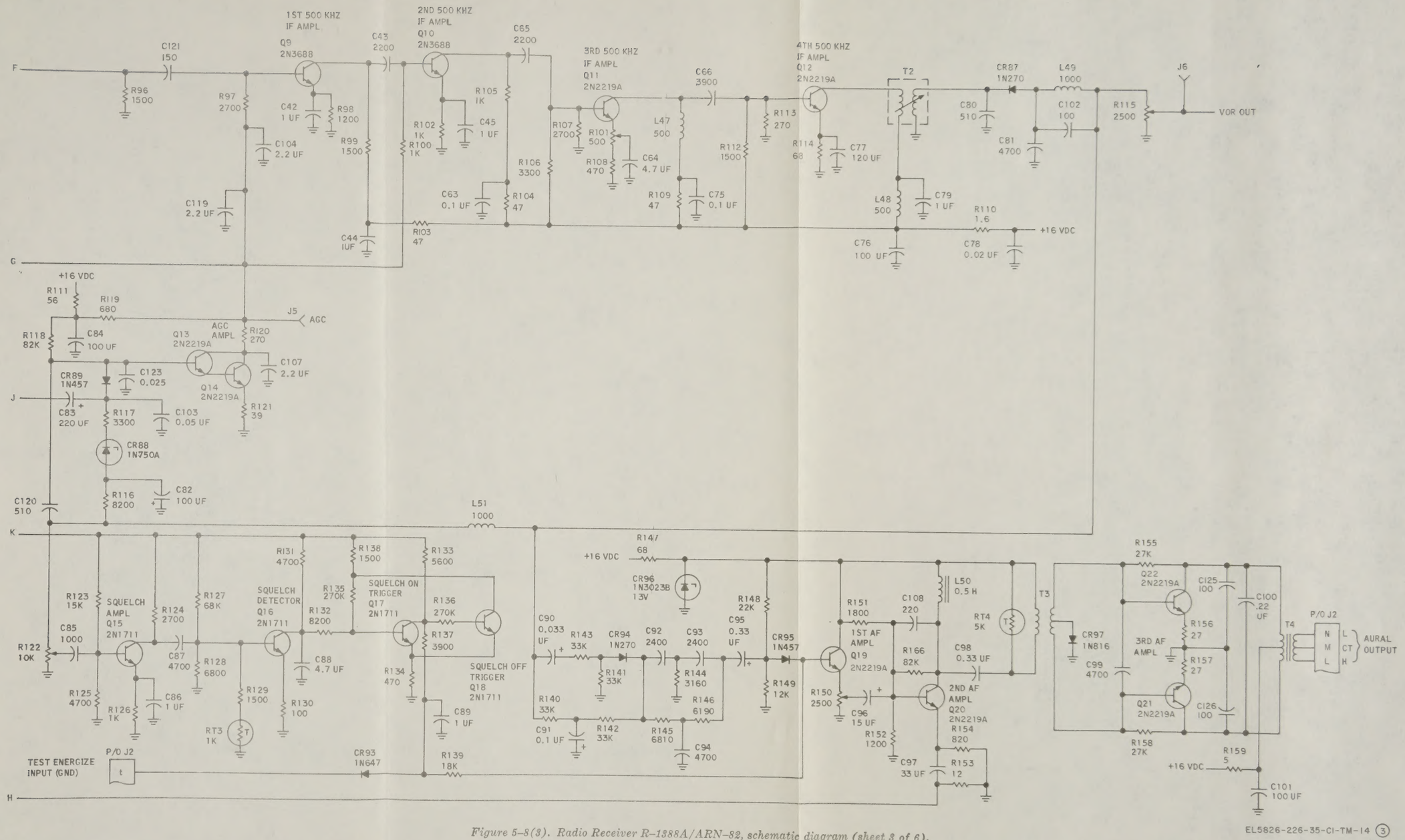


Figure 5-8(3). Radio Receiver R-1388A/ARN-82, schematic diagram (sheet 3 of 6).

EL5826-226-35-CI-TM-14 (3)

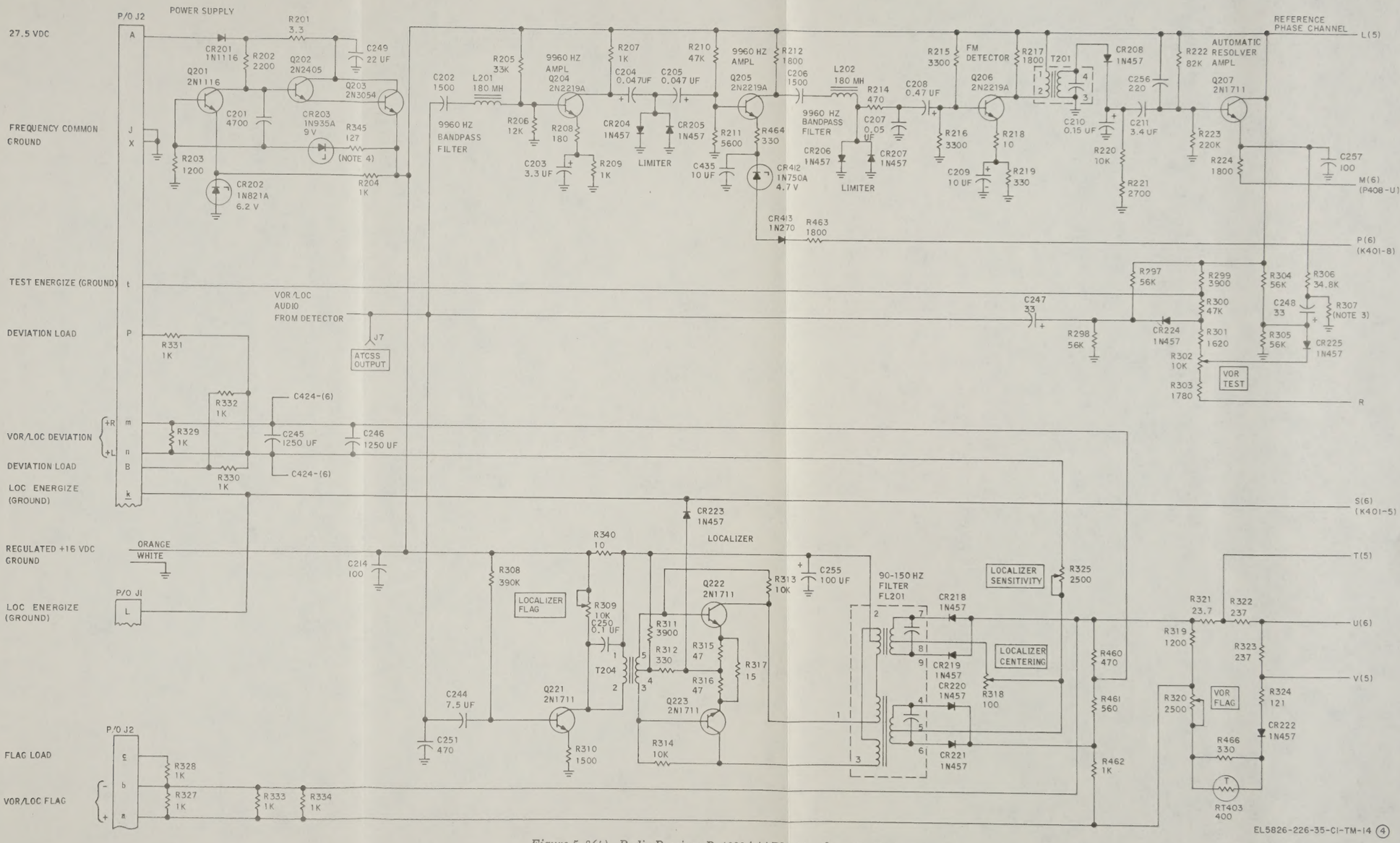


Figure 5-8(4). Radio Receiver R-1388A/ARN-82, schematic diagram (sheet 4 of 6).

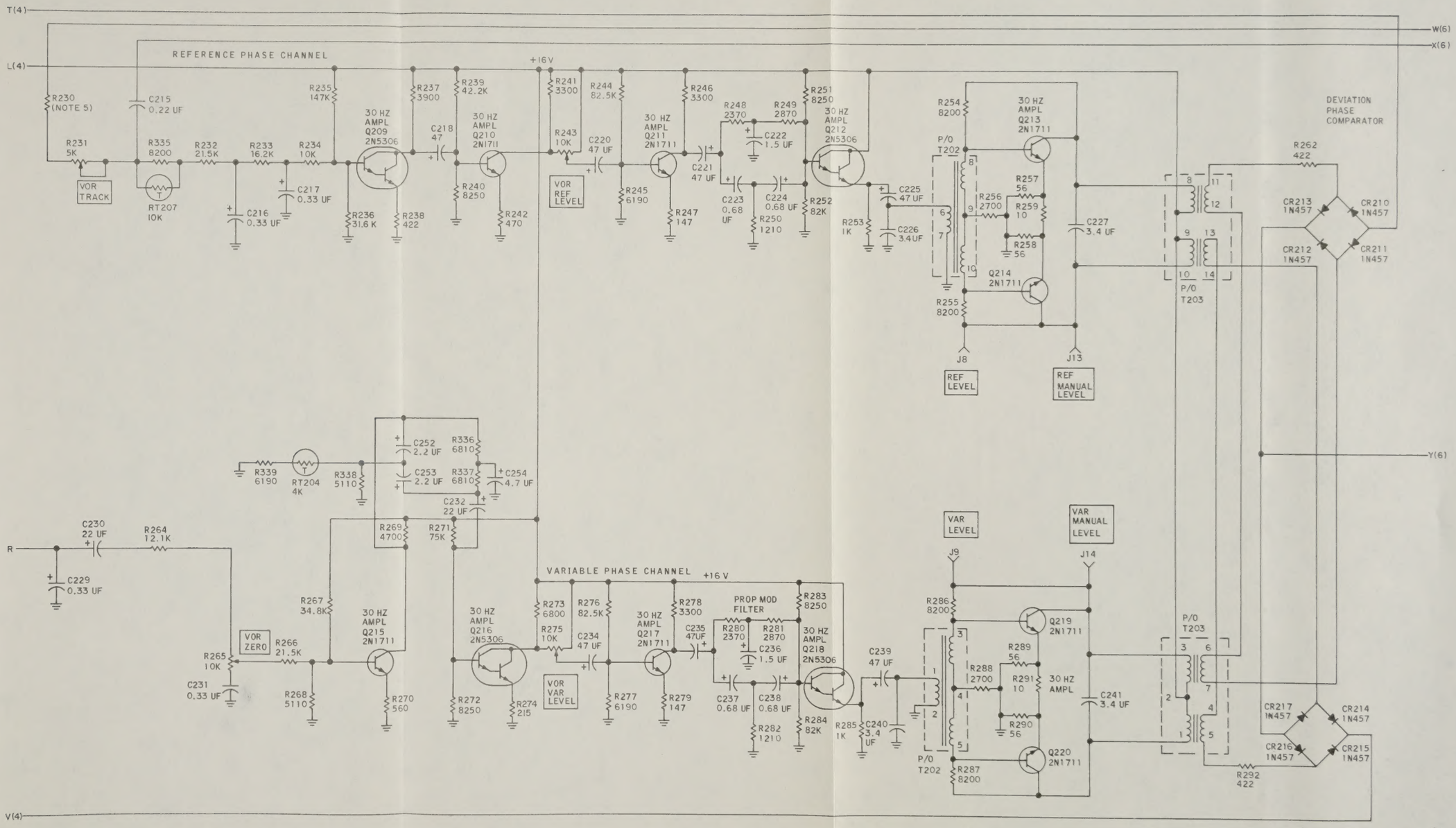
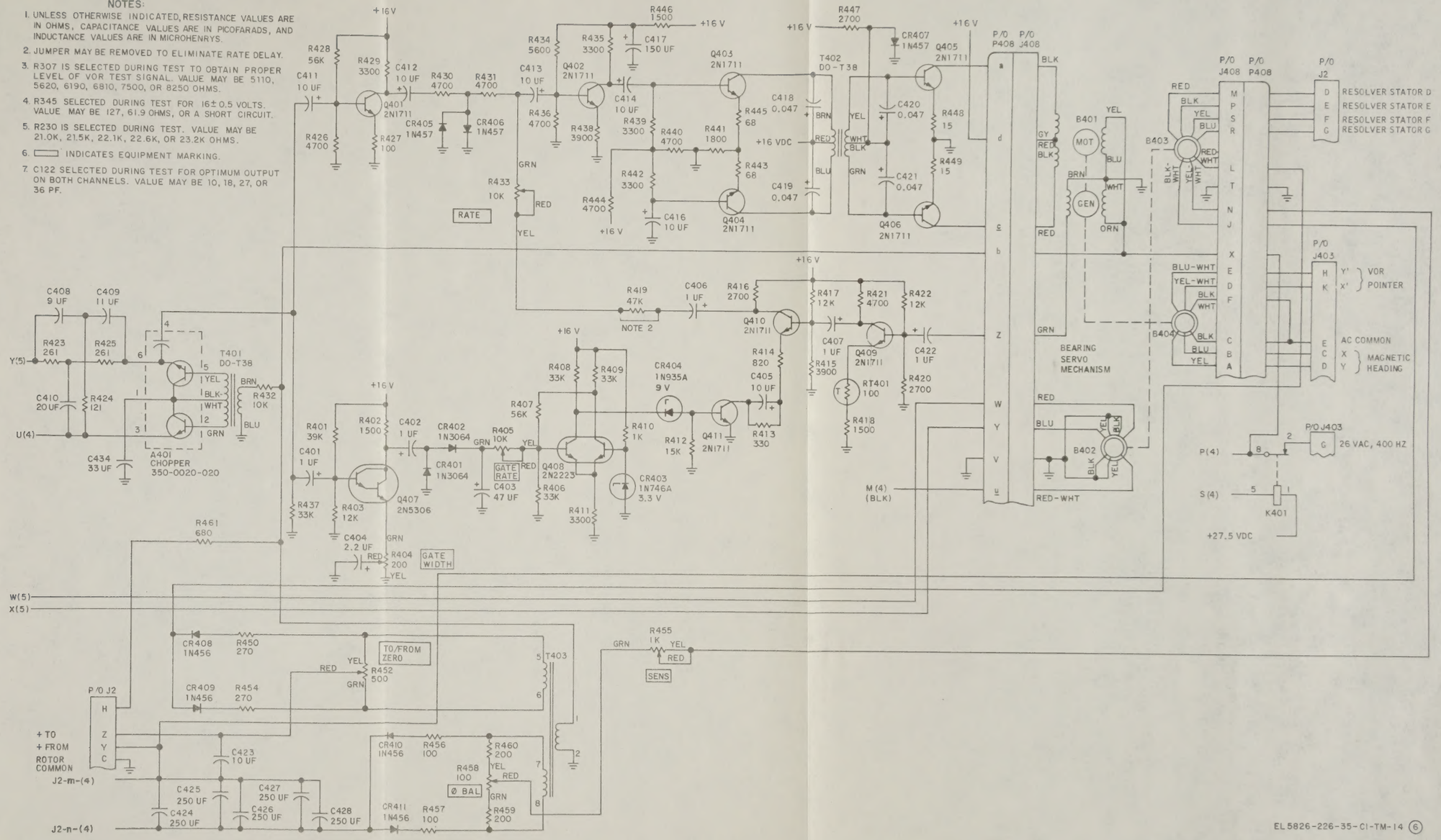


Figure 5-8(5). Radio Receiver R-1388A/ARN-82, schematic diagram (sheet 5 of 6).

EL5826-226-35-CI-TM-14 (5)

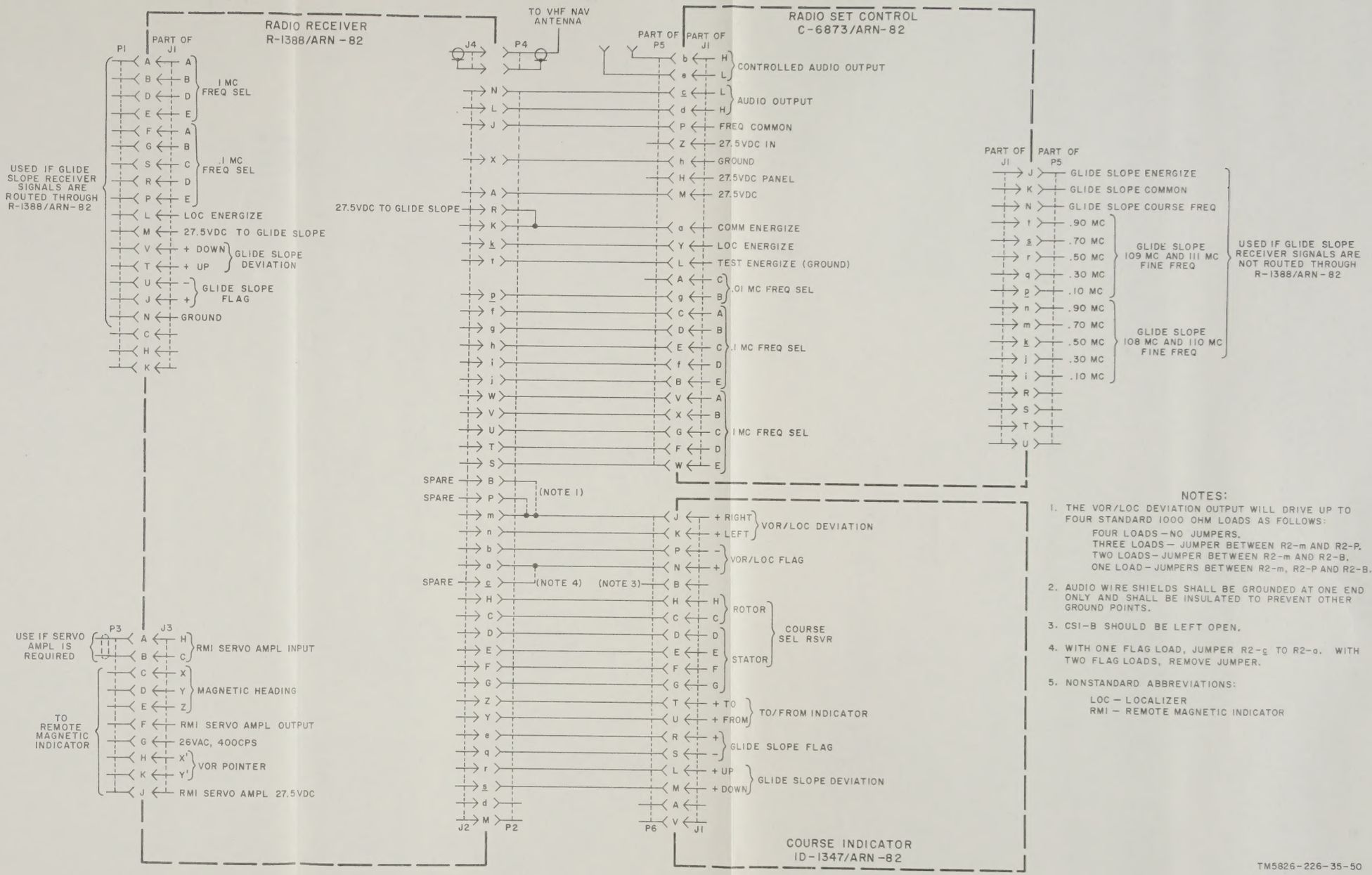
NOTES:

1. UNLESS OTHERWISE INDICATED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN PICOFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
2. JUMPER MAY BE REMOVED TO ELIMINATE RATE DELAY.
3. R307 IS SELECTED DURING TEST TO OBTAIN PROPER LEVEL OF VOR TEST SIGNAL. VALUE MAY BE 5110, 5620, 6190, 6810, 7500, OR 8250 OHMS.
4. R345 SELECTED DURING TEST FOR 16±0.5 VOLTS. VALUE MAY BE 127, 61.9 OHMS, OR A SHORT CIRCUIT.
5. R230 IS SELECTED DURING TEST. VALUE MAY BE 21.0K, 21.5K, 22.1K, 22.6K, OR 23.2K OHMS.
6. ▭ INDICATES EQUIPMENT MARKING.
7. C122 SELECTED DURING TEST FOR OPTIMUM OUTPUT ON BOTH CHANNELS. VALUE MAY BE 10, 18, 27, OR 36 PF.



EL 5826-226-35-CI-TM-14 (6)

Figure 5-8(6). Radio Receiver R-1388A/ARN-82, schematic diagram (sheet 6 of 6).



NOTES:

1. THE VOR/LOC DEVIATION OUTPUT WILL DRIVE UP TO FOUR STANDARD 1000 OHM LOADS AS FOLLOWS:
   FOUR LOADS – NO JUMPERS.
   THREE LOADS – JUMPER BETWEEN R2-m AND R2-P.
   TWO LOADS – JUMPER BETWEEN R2-m AND R2-B.
   ONE LOAD – JUMPERS BETWEEN R2-m, R2-P AND R2-B.
2. AUDIO WIRE SHIELDS SHALL BE GROUNDED AT ONE END ONLY AND SHALL BE INSULATED TO PREVENT OTHER GROUND POINTS.
3. CSI-B SHOULD BE LEFT OPEN.
4. WITH ONE FLAG LOAD, JUMPER R2-c TO R2-a. WITH TWO FLAG LOADS, REMOVE JUMPER.
5. NONSTANDARD ABBREVIATIONS:
   LOC – LOCALIZER
   RMI – REMOTE MAGNETIC INDICATOR

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Figure 5-9. Radio Receiving Set AN/ARN-82 or AN/ARN-82A, interconnecting cabling diagram.

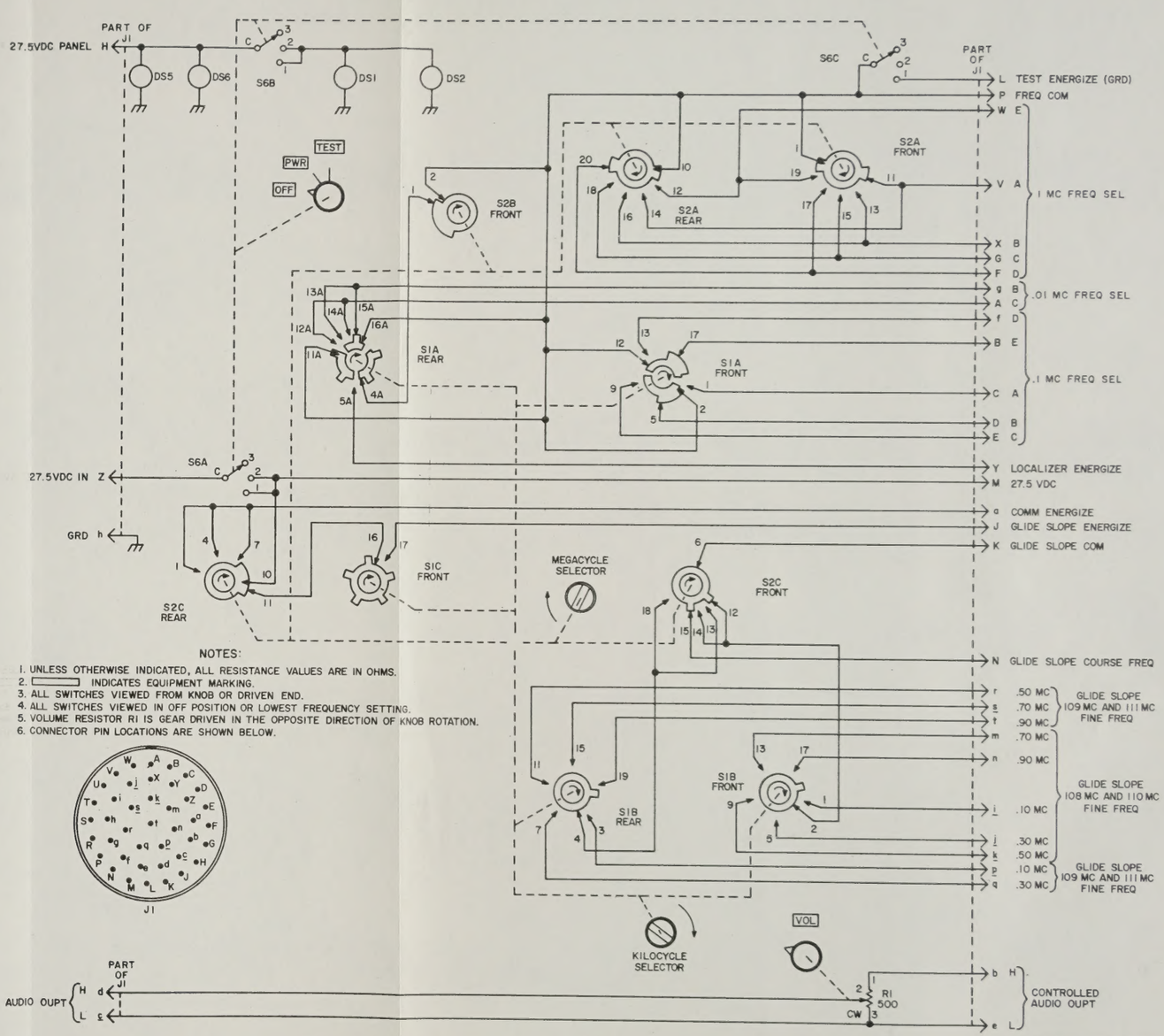

Figure 5–10. Radio Set Control C-6873/ARN-82, schematic diagram.